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Review of existing national space legislation illustrating how States are implementing, as appropriate, their responsibilities to authorize and provide continuing supervision of non-governmental entities in outer space

Note by the Secretariat

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I. Introduction

1. At its thirty-ninth session, in 2000, the Legal Subcommittee requested the Secretariat to prepare a paper setting out the key elements of existing national space legislation that, in the Secretariat's judgement, illustrated how States were implementing, as appropriate, their responsibilities to authorize and provide continuing supervision of non-governmental entities in outer space (A/AC.105/738, para. 87).

2. The present document has been prepared by the Secretariat in response to that request and includes a review of relevant national space legislation known and available to the Secretariat at the time of its preparation.

3. The present review does not cover national legislation that simply serves to enact the texts of existing international space law instruments, mutatis mutandis, into domestic law. Nor does it cover national space legislation that is not directly concerned with the space-related activities of non-governmental entities. Additionally, while it is recognized that the scope and application of national legislation on subjects such as civil liability, trade law, transport law, securities, intellectual property, telecommunications, national security and so on could be and in some cases are extended to the space-related activities of non-governmental entities, the present note concentrates on national legislation that is specifically focused on space.

II. Review of national space legislation

A. Argentina

4. The two legislative instruments identified under Argentine law that illustrate how the State of Argentina is implementing, as appropriate, its responsibilities to authorize and provide continuing supervision of non-governmental space activities are National Decree No. 995/91, Creation of the National Commission on Space Activities, and National Decree No. 125/95, Establishment of the National Registry of Space Objects Launched into Outer Space.

5. Article 1 of National Decree No. 995/91 creates the National Commission on Space Activities (CONAE) as an administratively and financially autonomous entity accountable directly to the President of Argentina. Article 2 of the same instrument stipulates that CONAE shall be the only national state body competent to take charge of, formulate, implement, monitor, manage and administer projects and undertakings in the field of space. While article 2 does not specifically indicate whether such projects or undertakings would also include those of non-governmental entities, this is implied by article 3, which includes among the functions of CONAE the coordination of all activities of the National Space System, including all public and private institutions engaged in space activities, whether directly or indirectly.

6. The means whereby CONAE coordinates and administers space-related undertakings is elaborated upon in National Decree No. 125/95. Article 1 establishes a national registry of objects launched into outer space under the direct authority of the Commission. Article 2 stipulates that the registration of space objects shall be effected in the national registry by their owners and operators, together with particulars of any rights, resolutions, contracts and other legal acts or deeds relating to the space object. The wording of this article appears to include within its application private entities that own or operate space objects. It is not specifically stated in the instrument whether the registration requirement is limited to owners and operators of Argentine nationality.

7. Article 3 specifically reiterates that the registration of space objects in the national registry shall be mandatory and that such registration shall, in conformity with existing international rules, confer national jurisdiction and control over the registered space object, wherever it may be located. This would seem to represent a clear assumption of responsibility by CONAE and the State of Argentina for activities connected with space objects appearing in the national registry.

8. Article 5 of National Decree No. 125/95 sets out the information that must be provided for inclusion in the national registry, including, inter alia, if the object has been launched jointly with one or more other launching States and the international conventions concluded with such State or States; the anticipated date and territory or location of the launch; the name and address of the owners and/or operators of the space object; the identification of the firms participating in the construction of the space object and of its launch

vehicle; the identification of the launch service provider; information on the insurance arranged; the identification of the party responsible for exercising control over the space object; the location and character of the satellite tracking, telemetry and command station and of the master or tracking station, if applicable; information on on-board transmission power and frequencies of the space object; the anticipated useful life of the space object; precautions taken with regard to non-pollution of outer space, including celestial bodies, in particular whether mechanisms have been provided for placement in a transfer orbit at the end of the useful life of the space object; the anticipated date of disintegration, recovery or loss of contact with the space object; and any identifying mark located on non-disintegrable parts. The nature of the information that must be provided for purposes of registration of space objects under article 5 is indicative of the administrative and monitoring function that would be carried out by CONAE in the case of non-governmental space-related activities.

9. While the provisions of National Decree No. 125/95 do not specifically deal with the manner in which CONAE might utilize the above-mentioned information provided for registration of space objects, the instrument should be read in conjunction with article 2 of National Decree No. 995/91 discussed in paragraph 5 above. In addition, it should be noted that article 4 of National Decree No. 995/91 empowers CONAE to take any legal steps necessary for its proper functioning in the exercise of its powers and responsibilities.

B. Australia

10. In Australia, space activity is regulated in accordance with the provisions of the Space Activities Act, No. 123 of 21 December 1998. Part 1, section 3, of the Act indicates that the objects of the Act include the establishment of a system for the regulation of space activities carried on either from Australia or by Australian nationals outside Australia. The term "Australian national" is defined in section 8 as meaning (a) an Australian citizen; or (b) a body incorporated by or under the law of the Commonwealth of Australia, or a state or territory thereof; or (c) the Commonwealth, or a state or territory itself. It is also implied by the wording of section 3 that the Act is applicable to space activities carried on by non-Australian nationals, if they are conducted from the territory of Australia.

11. The regulation of space activities under this Act is carried out under the authority of the Minister for Industry, Science and Resources, primarily through delegation under section 104 to the Space Licensing and Safety Office established within the structure of the Department of Industry, Sciences and Resources. This is not expressly stated in the text of the Act itself, but is indicated by the explanatory memorandum that was circulated with the text during its consideration in the Australian Parliament.

12. Part 3 of the Act sets out the conditions and procedures for the regulation of various space activities. Within that part, section 18 provides for the granting by the Minister of a space licence to a person to operate a launch facility in Australia and to launch a particular type of launch vehicle from such facility on the satisfaction of certain criteria. These include, inter alia, competency of the person to operate the launch facility and kind of launch vehicle; obtaining of all necessary environmental approvals; evidence of sufficient funding to construct and operate the facility; meeting of necessary public health and safety standards; and not compromising Australia's national security, foreign policy or international obligations. Additionally, section 20 establishes as standard conditions of the space licence that the licensee provide any information requested by the Minister and facilitate the proper performance of activities by the Launch Safety Officer (described in para. 18 below). Such space licence may be transferred to another person upon application to the Minister (sects. 22 and 23). Failure to comply with the conditions of a space licence may lead to civil penalties for the contravening person, as well as the suspension of the licence by the Minister (sect. 25). The Minister may also vary or revoke the licence, even while it is suspended (sect. 25, para. 3).

13. Section 26 of the Act provides for the granting by the Minister of a launch permit to a person for the launch of a particular space object or series of similar such launches from a specified launch facility in Australia using a specified kind of launch vehicle. The launch permit may also authorize the return of such space objects to a specified place or area in Australia. Such launch permit may only be granted provided certain criteria are satisfied. One of these is that the

person being granted the permit is already the holder of a space licence granted under section 18 for the launch facility and type of launch vehicle concerned. Thus, a two-tiered system of licensing is established for launching of space objects, with the possession of a valid licence to operate a launch facility being a sine qua non for the issuance of a launch permit.

14. Additional criteria for the granting of a launch permit include, inter alia, that the person carrying out the launch and any connected return is competent to do so; that the necessary insurance/financial requirements specified in division 7 of the Act are satisfied; that necessary public health and safety standards are met; and that Australia's national security, foreign policy or international obligations are not compromised. Furthermore, standard launch conditions set out in section 29 require that the launch or connected return of a space object not be conducted in a way that is likely to cause substantial harm to public health or safety or property and that the object not be or contain any nuclear weapon, weapon of mass destruction or unauthorized fissionable material. Breaching of these latter conditions can lead to severe criminal penalties under section 30. Sections 31-34 provide for conditions and procedures for the transfer, variation, suspension and revocation of launch permits similar to those for a space licence.

15. Section 35 of the Act provides for the issuance of overseas launch certificates in order to authorize the launch of space objects from facilities outside Australia in cases where an Australian national is a "responsible party". This latter term is defined to include any person or persons carrying out the launch or return of the object and any person who owned all or part of any payload forming part of the space object during the liability period. The conditions and procedures for the granting of such an overseas launch certificate largely mirror those for a space licence and launch permit.

16. A unique element of the Australian legislation appears in division 5 of part 3 of the Act (sects. 42-45), which provides for the granting of authorization to return to an area or place in Australia of an object previously launched into space from outside Australia. Such authorization is granted by permission of the Minister or agreement concluded on behalf of the Commonwealth of Australia, under conditions similar to those applied for the return of space objects originally launched from within Australia.

17. Sections 11-15 of the Act specify that the conduct or operation of any of the above-mentioned space activities or facilities without the requisite authorizations, or a duly issued exemption, results in significant criminal liability for the unauthorized person. The details of the criminal penalties to be incurred are also set out in those sections.

18. Further measures enabling Australia to fulfil its obligations to provide continuing supervision of national non-governmental space activities are contained in the provisions of sections 50-58 of the Act. Under those provisions, the Minister is required to appoint a Launch Safety Officer for each licensed launch facility. The Launch Safety Officer is responsible for ensuring that any requisite notices are given of launches at the facility, that no person or property is endangered by any launch conducted at the facility and that all conditions of space licences and launch permits are fully complied with. The Launch Safety Officers are granted fairly wide powers in order to carry out their functions. Those powers include the right to enter and inspect facilities and space objects at the facilities with the consent of the licence holder, to request necessary information concerning the activities under consideration, to provide directions concerning a specific launch in order to avoid danger to public health, persons or property (including directions to stop the launch or destroy the space object) and search and seizure powers in case of emergency.

19. In a similar manner, sections 84-103 of the Act set out specific and detailed conditions and procedures in the case of an accident or incident involving a space object during the liability period for a launch or return. Immediately following an accident, and until such time as the Minister advises otherwise, any relevant launch permits and other authorizations are automatically suspended (sect. 95). In the case of an accident the Minister must appoint a suitably qualified and experienced person as the Investigator of the accident, while in the case of an incident, the choice of whether to make such an appointment is at the discretion of the Minister. The Act grants extensive investigative powers to the Investigator, similar to those enjoyed by the Launch Safety Officer. The Investigator is required to provide a written report to the Minister following

completion of his investigation, upon which the Minister acts as appropriate.

20. Finally, the Australian Act has extensive provisions dealing with the issue of liability for damages caused by space-related activities. Firstly, as mentioned above, in order to obtain a launch permit, overseas launch certificate or section 43 authorization (overseas launched object returning to Australia), the person applying is required to meet certain insurance/financial requirements. These requirements are set out in sections 47-49 of the Act. The applicant must, during the liability period of the launch or return, either satisfy the insurance requirements set out in section 48 or (in accordance with the regulations to be promulgated) show direct financial responsibility for the launch or return. Section 48 provides that insurance requirements for a launch from or return to Australia are met if the applicant is insured to the extent of maximum probable loss (as determined according to a method set out in the regulations) against any liability incurred for third party damage; and the Commonwealth of Australia is similarly insured against liability that it might incur under the Convention on International Liability for Damage Caused by Space Objects (the "Liability Convention", General Assembly resolution 2777 (XXVI), annex) or otherwise under international law. In the case of launches conducted outside of Australia by Australian nationals, only the latter insurance is required to be evidenced. In all cases the Commonwealth is not required to take out insurance, rather the applicant is required to take out insurance on its behalf.

21. Furthermore, sections 63-75 of the Act establish Australia's position with respect to the incurring of liability for damage caused by space objects in the circumstances discussed above, as well as the basic conditions and procedures for establishing liability and claiming compensation. Section 69 limits the amount of a duly authorized permit or certificate holder's liability to that amount for which insurance was required for issuance of the relevant authorization, provided there has been no breach of the conditions of the authorization or wilful or grossly negligent misconduct. Section 70 excludes from this limitation the case of a non-Australian national who incurs liability as a result of the return to Australia of a space object launched from outside of Australia. In accordance with section 64, paragraph 2, this limitation will not prevent Australia from complying with any obligation to pay compensation under the Liability Convention or otherwise under international law for such damage. However, in the event of such, the responsible party for the launch or return is required under section 74 to compensate the Commonwealth of Australia in an amount equal to the lesser of the amount actually paid by Australia under the claim or, if the launch or return is duly authorized, the insured amount specified for the authorization.

C. Japan

22. As indicated in a presentation to the Legal Subcommittee at its thirty-ninth session, in 2000,[1] the space-related activities of Japanese non-governmental entities, in particular the launching of space objects, are at present fairly limited. All launches from Japan are currently conducted by either the National Space Development Agency (NASDA), a public corporation established by the Law concerning the National Space Development Agency of Japan, No. 50 of 23 June 1969 (the "NASDA Law"), or by the Institute of Space and Astronautical Science (ISAS), a national research institute established under the auspices of the Ministry of Education.

23. However, an amendment of the NASDA Law, effective from 3 June 1998, illustrates how the State of Japan is implementing, as appropriate for the launching of space objects, its responsibilities to authorize and provide continuing supervision of non-governmental space activities. Article 22 of the NASDA Law details the scope of business of NASDA and includes therein the development of rockets for the launching of artificial satellites, the launching and tracking of artificial satellites and the development of means, facilities and equipment necessary therefore in situations where NASDA performs such activities under consignment arrangements with non-governmental persons or entities. Article 22, paragraph 2, however, stipulates that such conduct by NASDA shall be in compliance with guidelines prescribed with the authorization of the appropriate minister.

24. Additionally, the NASDA Law now contains a sub-chapter on compensation for damages due to launch of artificial satellites. Article 24-2 of that sub-chapter sets as a precondition for any launch by NASDA, including those performed under consignment for non-governmental persons or entities, that

insurance has been obtained that secures such amount as is necessary to compensate for damages incurred by third parties as a result of the launch. In the case of a "consigned launch", article 24-2, paragraph 3, provides that this insurance may be entered into by the person or entity consigning the launch for and on behalf of NASDA. This does not appear to be necessarily a mandatory requirement, however, but dependent upon the specific arrangement between the consigning person or entity and NASDA in each case. Article 24-3 allows NASDA, with ministerial approval, to enter into arrangements for consigned launches whereby it assumes complete liability in the event that it would otherwise be held jointly liable with the consigning person or entity for damages caused to third parties. In such cases, insurance being taken out for such damages by the consigning person or entity for and on behalf of NASDA is a mandatory requirement. It is not evident from the wording of the above-mentioned provisions what damages would qualify as resulting from a particular launch and thus fall within the scope of the insurance requirements, nor whether these would also include damages caused by a space object subsequent to its launch.

D. Russian Federation

25. The Russian Federation has various legislative and regulatory instruments governing specific aspects of space-related activities. However, the principal instrument of legislation on space activity in the Russian Federation is the Law on Space Activity, Federal Law No. 5663-1 of 20 August 1993, as amended by Federal Law No. 147-FZ of 29 November 1996.

26. The introductory section of the Law on Space Activity indicates that it is intended to provide legal regulation for space activities, which are defined in article 2, paragraph 1, as any activities directly connected with operations to explore and use outer space, including the Moon and other celestial bodies. Article 2, paragraph 1, then lists certain main areas of space activity, including, inter alia, scientific space research; use of space technology for communications; remote sensing of the Earth from outer space (including environmental monitoring and meteorology); use of navigation, topographical and geodesic satellite systems; manned space missions; observation of objects and phenomena in outer space; testing of technology in outer space conditions; manufacturing of materials and products in outer space; and other types of activity performed with the aid of space technology. The scope of the Law is therefore relatively broad, which is borne out by the text of its specific provisions dealing with diverse matters ranging from the responsibility of the President of the Russian Federation and various sections of the Government to the development and coordination of the Russian Federal Space Programme, the financing of space activity and the registration and use of space technology and intellectual property. Additionally, the provisions of the Law establish the regime by which the Russian Federation implements its responsibility to authorize and provide continuing supervision of the space-related activities of non-governmental entities.

27. Article 6 provides that the federal executive body responsible for space activity (currently the Russian Aviation and Space Agency (RASA)) shall be responsible, inter alia, for the issuance of licences for various types of space activity. This responsibility is performed with the advice and assistance of committees of disinterested experts and specialists established in accordance with article 11. Article 9 further states that licensing requirements shall apply to space activity pursued or undertaken by organizations and citizens of the Russian Federation or to the space activity pursued or undertaken by the foreign organizations and citizens under the jurisdiction of the Federation where such activity includes the testing, manufacture, storage, preparation for launch or launch of space objects, or control of space flights. Article 9, paragraph 4, continues that the pursuit of space activity by an organization or citizen not in possession of a licence or in wilful violation of the terms of the licence shall be punishable in accordance with the laws of the Russian Federation.

28. The detailed conditions and procedures pertaining to the application by Russian and non-Russian non-governmental entities for such licences, as well as the granting or denial thereof by RASA appear in a separate instrument, the Statute on Licensing Space Operations, Federal Government Decree No. 104 of 2 February 1996. Additionally, article 24 of this Statute grants RASA the right to question the licensee concerning observance of the conditions of the licence; require the licensee at the time of readying for launch to be able to produce a certificate of conformance of

the space facilities and insurance policy to the mandatory insurance of space operations in accordance with Russian legislation; carry out verification monitoring of the licensee operations; and shut down operations at the site of space activity for reasons of health, safety, state interests or security, unlicensed activity or violations of licence conditions. Article 25 further provides for the suspension or annulment of licences by RASA in cases of failure by the licensee to comply with conditions of the licence or instructions or orders of state agencies; discovery of false data in documents submitted in applying for a licence; dissolution of the licensee if a legal entity or cessation of state certification if a sole proprietor; or submission of a corresponding application by a licensee.

29. Article 10 of the Law on Space Activity establishes that space technology, including space objects and space infrastructure facilities with scientific and socio-economic applications, shall be subject to certification through inspection to ensure compliance with the requirements established by the laws of the Russian Federation. While it is not stated expressly, the provisions of this article would also seem to be directed implicitly towards space technology of non-governmental entities. In accordance with article 6, administration of such certification is also the responsibility of the federal executive body responsible for space activity (RASA), which acts on the advice of expert committees established under article 11.

30. In addition to the above-mentioned licensing and certification processes, the Law on Space Activity also provides for the continuing exercise of control by the Russian Federation over space-related activities through the mechanism of registration of space objects. Article 17, paragraph 1, requires the registration of all space objects of the Russian Federation. While it is not expressly stated that "space objects of the Russian Federation" also includes objects of Russian non-governmental organizations and citizens, a common sense reading of the text would seem to imply that this is the case. This is further supported by the texts of article 17, paragraph 4 (which deals with the issue of registration and ownership in cases where a space object has been designed by Russian organizations and citizens jointly with foreign States, organizations and citizens or international organizations) and article 30, paragraph 2 (which deals with compensation payable by the organization or citizen owning the space object causing damage in the case of one "space object of the Russian Federation" damaging another "space object of the Russian Federation").

31. Article 17, paragraph 2, states that the Russian Federation shall retain jurisdiction and control over space objects registered in it during the time spent by such objects on the ground and at any stage of their flight in outer space or stay in outer space or on celestial bodies, as well as their return to Earth outside the jurisdiction of any other State. Article 17, paragraph 5, further allows for extension of the scope of control, stating that in the direct vicinity of a space object of the Russian Federation, within the minimum zone necessary for ensuring the safety of space activity, rules may be established that shall be binding upon Russian and foreign organizations and citizens. Furthermore, article 20, paragraph 4, states that the Russian Federation shall retain jurisdiction and control over any crew of a manned space flight registered in its territory. While manned space flight has until now only been carried out by governmental entities, this provision would seem equally applicable to such activity undertaken by non-governmental entities in the future. The same would be true for the provisions of article 20, paragraph 5, which subjects all citizens of foreign States who have undergone training for space flight in the Russian Federation or have participated in a flight on board a manned space object of the Russian Federation to the laws of the Federation, unless otherwise provided by international treaties to which the Federation is a party.

32. Section V of the Law on Space Activity deals specifically with the subject of safety of space activity. Article 22 of that section requires that all space activity comply with the safety requirements established by the laws and other normative legislative acts of the Russian Federation and that such activity be performed with due regard to the permissible level of man-made contamination of the environment. Primary responsibility for ensuring the safety of space activity lies with the federal executive body responsible for space activity (RASA) and the federal executive defence body.

33. In addition to the controls exercised to ensure safety through the above-mentioned mechanisms of licensing of space activity and certification of space technology, article 23 of the Act provides for the performance of investigations in the case of incidents, accidents and disasters occurring during the course of

space activity. As is the case for licensing and certification, article 11 provides assistance to investigating state bodies in the form of advisory committees of disinterested experts and specialists. Additionally, article 24 establishes responsibility for search and rescue operations and clean-up of incidents occurring in the course of space activity, including, where appropriate, that of non-governmental organizations and citizens.

34. Finally, article 25 states that organizations and citizens who use or operate space technology (including space objects and space infrastructure facilities with scientific and socio-economic applications) or who place orders for the design and use thereof shall be required to take out compulsory insurance coverage for the life and health of the cosmonauts and personnel of space infrastructure facilities and shall also bear liability for damage causing death or injury of other persons or damage to their property. By the provisions of article 27, paragraph 3, this insurance requirement is also extended to foreign organizations and citizens engaging in space activity under the jurisdiction of the Russian Federation. Article 30 establishes rules for liability and payment of compensation for damages for personal injury or damage to property caused by space objects of the Russian Federation in the course of space activity within the territory of or outside the Federation by those organizations or citizens owning the space objects or having taken out insurance to cover their liability for damage.

E. South Africa

35. The primary South African legislative instrument governing the regulation of both governmental and non-governmental space-related activities is the Space Affairs Act, No. 84 of 2 July 1993, as amended by the Space Affairs Amendment Act, No. 64 of 6 October 1995. Section 4 of the Space Affairs Act establishes the South African Council for Space Affairs under the authority of the Minister of Trade and Industry, which has as its object the implementation of the space policy of South Africa. Section 5 further provides that the Council shall on behalf of the State take care of the interests, responsibilities and obligations of the Republic regarding its space and space-related activities in compliance with international conventions, treaties and agreements entered into by the Government of the Republic.

36. Section 11, paragraph 1, states that no person (natural or legal) shall, except in terms of a licence issued by the Council, perform any of the following activities: (a) any launching from the territory of the Republic; (b) any launching from the territory of another State by or on behalf of a legal person incorporated or registered in the Republic; (c) the operation of a launch facility; (d) the participation by any legal person incorporated or registered in the Republic, in space activities entailing obligations to the State in terms of international conventions, treaties and agreements entered into by the Government of the Republic or which may affect South Africa's national interests; (e) any other space or space-related activities prescribed by the Minister by regulation. While the Act does not specify further what is meant by a "launch facility", section 1 defines "launching" as the placing or attempted placing of any spacecraft into a sub-orbital trajectory or into outer space or the testing of a launch vehicle or spacecraft in which it is foreseen that the launch vehicle will lift from the Earth's surface; and "space activities" as the activities contributing directly to the launching of spacecraft and the operation of such craft in outer space.

37. Section 11, paragraph 2, provides that a licence shall be issued subject to such conditions as are determined by the Council, taking into account minimum safety standards and the national interests and international obligations and responsibilities of South Africa. Section 13 sets out the conditions and procedures for the amendment, suspension and revocation by the Council of a licence issued and includes as grounds for such suspension or revocation that the space activity conducted is in violation of any condition of the licence, is indicated to represent an unacceptable safety risk or is in conflict with the interests of the South African State. Section 14 provides additional conditions that may be contained in the licence, including (a) liability of the licensee for damages; (b) security to be given by the licensee for such damages and the manner in which such security is to be given; and (c) liability of the licensee resulting from international conventions, treaties and agreements entered into by the Government of the Republic. Section 14 also states that the Council may, in the case of a suspension or revocation of a licence, give to the

licensee such directions as it may deem necessary to prevent loss of life, injuries or damages.

38. To assist the Council in the administration and regulation of space-related activities, it may appoint inspectors in accordance with section 10 of the Act. Such inspectors are granted the authority to enter any facility of a person who has applied for a licence, to whom a licence has been issued or where the Council has reason to believe an activity to which the Act applies is being carried out and to conduct such inspections or investigations as are deemed necessary. Inspectors may also be instructed to be present at any activity to which a licence applies in order to ascertain whether the conditions of the licence are being complied with and shall immediately report to the Council any situation or activity that poses an unacceptable safety risk.

39. Decisions of the Council are subject to review by the courts of law of South Africa (section 17) and may also be appealed to the Minister (section 16). In terms of section 9, the Minister may appoint a board of inquiry of specified experts to assist in the adjudication of such appeals or any other matter falling within the scope of the Act, for example, an investigation following an accident, incident or potential emergency under section 12.

40. Section 23 provides for various criminal offences and penalties in the event of failure to comply with the provisions of the Act. Criminal liability results from, inter alia, performance of space-related activity without the necessary licence; failure to comply with the conditions of a licence; and failure to cooperate with or comply with the instructions of the Council, inspectors or board of inquiry.

41. Finally, section 22 provides that the Minister may promulgate further regulations relating to matters within the scope of the Act, including the manner in which the functions of the Council shall be performed, the procedures for licence applications, safety measures and minimum safety standards for any space or space-related activity, measures to be taken to protect South Africa's national interests and the application of provisions of international conventions, treaties and agreements entered into by the Government of the Republic.

F. Sweden

42. The two Swedish legislative instruments regulating space activities are the Act on Space Activities (1982:963) and the Decree on Space Activities (1982:1069). The provisions of the latter instrument serve as a complement to those of the former. Section 1 of the Act on Space Activities indicates that its provisions apply to space activities including those carried out entirely in outer space as well as the launching of objects into outer space and all measures to manoeuvre or in any other way affect objects launched into outer space. Specifically excluded from the application of the Act are the mere receipt of signals or information in some other form from objects in outer space and the launching of sounding rockets.

43. Section 2 of the Act on Space Activities provides that no space activity may be carried out from Swedish territory by any party other than the Swedish State without a licence. This stipulation would seem to apply to all non-governmental space activity from within Swedish territory, including that of non-Swedish nationals. By contrast, section 2 continues with a second stipulation specifically requiring Swedish natural and legal persons carrying out space activities anywhere other than from Swedish territory also to obtain a licence. Section 3 of the Act indicates that such licence to carry out space activities is granted by the Government of Sweden, following application in writing to the Swedish National Space Board in accordance with section 1 of the Decree on Space Activities.

44. Section 3 of the Act on Space Activities states that a licence may be restricted in any way deemed appropriate or made subject to conditions aimed, inter alia, at ensuring sufficient control of the particular space activity. Section 3 further provides for the inspection of space activities of licence holders by an authority decided by the Government. Section 2 of the Decree on Space Activities appears to designate the Swedish National Space Board as that authority by declaring that the Board shall exercise control of space activities carried out by those who have licences for such activities, while section 3 of the Decree requires the Board to inform the Government in the event of a suspected infringement of the Act on Space Activities or conditions established in accordance with its provisions. The Swedish National Space Board is also

responsible in accordance with section 4 of the Decree on Space Activities for maintaining a register of space objects for which Sweden is to be considered the launching State.

45. Section 4 of the Act on Space Activities provides for the withdrawal of a licence by decision of the Government, on either a temporary or permanent basis, where the conditions thereof have been disregarded or other appropriate grounds for such withdrawal exist. Additionally, section 5 of the Act provides for criminal liability for any person wilfully or negligently carrying out space activities without the necessary licence or disregarding the conditions stipulated as a prerequisite for obtaining such a licence. Furthermore, section 5 extends the reach of Swedish criminal jurisdiction by stating that any person committing any of the above-mentioned criminal actions outside the territory of Sweden shall be subject to criminal liability and process upon return to Sweden. This extension would seem to be only applicable to Swedish natural and legal persons (i.e. not to non-Swedish non-governmental entities), as they are the only ones subject to, and so capable of criminally violating, licensing requirements and conditions for space activities outside of Sweden.

46. Finally, section 6 of the Act on Space Activities provides for the Swedish State to be reimbursed for payments made by it as a result of its incurring international liability for damages caused by space activities of persons other than the Swedish State. Except in special circumstances, such reimbursement shall be made to the State by the persons conducting such space activities. There is no indication that this provision is limited in any way and it would therefore seem to apply to all non-governmental space activity incurring liability for Sweden, regardless of whether or not it is licensed or conducted by nationals of Sweden.

G. Ukraine

47. The Law of Ukraine on Space Activity, No. 503/96-VR of 15 November 1996 indicates that it is intended to establish the general legal basis for pursuit of space activity in Ukraine and under the jurisdiction of Ukraine outside its borders and that its provisions shall apply to all types of activity relating to the exploration and use of outer space. Consequently, the provisions of the Law would also apply, as appropriate, to the space activities of Ukrainian non-governmental entities. "Space activity" is defined in article 1 of the Law as meaning scientific space research, the design and application of space technology and the use of outer space.

48. Certain specific acts in connection with the conduct of space activity in Ukraine are expressly prohibited under article 9 of the Law. These include the placement in space or testing of weapons of mass destruction; the use of the Moon or other celestial bodies for military purposes, hostile or military use of environmental modification techniques; presenting of a direct threat to the life or health of human beings and the causing of damage to the environment; the violation of international norms and standards regarding the pollution of outer space; and other acts related to space activity that are not permissible under international law. In addition, the Law provides for a regulating regime responsible for controlling and restricting, as appropriate, the space activities of non-governmental entities.

49. The Ukrainian National Space Agency is appointed in article 5 of the Law as the specially authorized central executive authority responsible for implementing State policy in relation to space activity. Article 6 includes within the competencies of the Ukrainian National Space Agency providing for the organization of space activity in Ukraine and under the jurisdiction of Ukraine outside its borders; directing the management and coordination of the work of enterprises, institutions and organizations in the space and related sectors; arranging for licensing of space activity in Ukraine and the licensing of such activity under the jurisdiction of Ukraine outside its borders; and the registration of "space facilities". "Space facilities" are defined in article 1 of the Law as meaning material objects produced by piecework that are designed, manufactured and operated both in space (space segment or infrastructure) and on the Earth's surface (ground segment or infrastructure) for purposes of exploring and using outer space.

50. In accordance with article 10 of the Law, any space facility engaging or intending to engage in space activity in Ukraine or under the jurisdiction of Ukraine outside its borders shall be required to have a licence from the Ukrainian National Space Agency for the pursuit of such activity. There is no distinction made here between space facilities owned and/or operated by Ukrainian entities and those owned and/or operated by

foreign entities. Article 10 leaves for future development under the laws of Ukraine of the list of types of space activity subject to licensing and indicates that the procedures for licensing of space activity will be established by the Cabinet of Ministers of Ukraine.

51. In addition, article 12 states that any space facility in Ukraine is subject to certification attesting to its compliance with operating requirements established by regulatory texts in force in Ukraine, with subsequent issuance of a compliance certificate. The Ukrainian Space Technology Certification System, operating as an integral part of the Ukrainian State Certification System, is responsible for determining the procedures for certification of space facilities and technology in Ukraine, as well as the testing and certification of space facilities imported to or exported from Ukraine. Furthermore, article 13 specifies that space facilities shall be subject to mandatory registration in the State Register of Space Facilities of Ukraine maintained by the Ukrainian National Space Agency in accordance with regulations to be promulgated, except to the extent that their place of registration has been agreed otherwise in terms of international agreements concluded.

52. The provisions of article 15 then state that a space facility shall only be cleared for operation if it has been issued with a compliance certificate as discussed above and also been registered in the State Register of Space Facilities of Ukraine. Article 15 further provides that the Ukrainian National Space Agency may restrict or prohibit the operation of space facilities where no compliance certificate has been issued or the period of validity of the compliance certificate has elapsed; the operation of the space facility is in violation of Ukrainian legislation currently in force; or the operation of the space facility is in violation of the requirements established by the technical operating documentation for that facility.

53. The Law of Ukraine on Space Activity also contains provisions dealing specifically with ensuring the safety of space activity. Article 20 states that state supervision of compliance with safety requirements in respect of space activity, as well as the training and certification of persons responsible for monitoring compliance with space regulations and verifying the necessary level of safety and of persons investigating incidents and emergencies shall be the responsibility of the Ukrainian National Space Agency, the Ministry of Defence and other executive authorities within their competence. Article 21 requires enterprises, institutions and organizations (whether domestic, international or foreign) engaging in space activity to comply with safety requirements regarding the life and health of the public, the property of citizens, enterprises, institutions and organizations and protection of the environment. Article 23 further imposes a compulsory requirement upon enterprises, institutions and organizations (whether domestic, international or foreign) engaging in space activity to furnish full information to state executive authorities on any incidents or emergencies occurring in connection with such activities.

54. The Law of Ukraine on Space Activity does not contain detailed additional provisions on the issues of liability for damages caused by space activity, compensation therefor and insurance required for such activities. Instead, articles 24 and 25 indicate that these shall be established by Ukrainian legislation currently in force and procedures established by the Cabinet of Ministers of Ukraine, thereby implicitly providing for the possibility, as necessary, of further detailed rules in this regard being drawn up. What is also apparent is that compulsory insurance is clearly envisaged under this general legal basis for the pursuit of pace activity in Ukraine and under the jurisdiction of Ukraine outside its borders. Similarly, article 29 states that offences under the legislation on space activity in Ukraine shall be punishable by disciplinary, civil law or criminal penalties in conformity with Ukrainian legislation currently in force.

55. Finally, article 8 of the Law provides for the establishment of regulations by relevant state authorities of Ukraine within their competence that shall be binding upon all enterprises, institutions and organizations (whether domestic, international or foreign) engaging in space activity. Article 8 further states that such regulations would include operating standards for space facilities, other regulatory acts governing compliance with the requirements of intellectual property protection and state, military and commercial secrecy, and standards and regulatory texts governing procedures for the following: licensing of space activity; certification and registration of space facilities; organization, execution and ensuring the safety of space launches and flights; supervision and monitoring of the safety of space launches, flights and the operation of space facilities; environmental protection in the course

of space activity; conduct of search and rescue operations in connection with space activity; conduct of official investigations of incidents and emergencies; construction, operation, maintenance and repair of installations and equipment of infrastructural ground facilities; training of personnel of space facilities; and implementation of measures to protect space activity from unlawful intrusion.

H. United Kingdom of Great Britain and Northern Ireland

56. As is stated in the text of its preamble, the Outer Space Act 1986 of the United Kingdom of Great Britain and Northern Ireland, which came into force on 31 July 1989, was enacted specifically to confer licensing and other powers on the Secretary of State to secure compliance with the international obligations of the United Kingdom with respect to the launching and operation of space objects and the carrying out of other activities in outer space by persons connected with that country. These conferred powers and their corresponding responsibilities are exercised on behalf of the Secretary of State by the British National Space Centre (BNSC), which is also responsible for maintaining the national register of space objects.

57. Section 1 indicates the application of the Act to launching or procuring the launch of a space object; operating a space object; or any other activity in outer space whether carried on in the United Kingdom or elsewhere. Section 2 further establishes that the Act applies to all United Kingdom nationals (including citizens of British dependent territories, British overseas citizens and British nationals located overseas), Scottish firms, and bodies incorporated under the law of any part of the United Kingdom.

58. Section 3 then prohibits any person to whom the Act applies from carrying on any activity to which the Act applies except under the authority of a licence granted by the Secretary of State. There are certain exceptions provided where such licence would not be required, including for actions by a person acting as an employee or agent for another; for activities where arrangements have been made between the United Kingdom and another country to secure compliance with the international obligations of the United Kingdom; or where an exemption has been granted by the Secretary of State on grounds that such requirement is not necessary to secure compliance with the international obligations of the United Kingdom. In practice, as is indicated in their published information for licence applicants, BNSC currently does not require a licence to be obtained for the leasing of space segment satellite capacity (transponders) from international intergovernmental satellite organizations or privately owned entities; or for the utilization of space segment satellite capacity (transponders) using Earth stations for either transmissions or reception purposes (unless carried out by persons involved in telemetry, tracking and control of space objects).

59. In accordance with section 4 of the Act, the Secretary of State may grant a licence if he thinks fit, provided that no licence shall be granted unless it is shown that the activities to be authorized will not jeopardize public health or the safety of persons or property; will be consistent with the international obligations of the United Kingdom; and will not impair the country's national security. Furthermore, section 5 provides that a licence shall be granted for such period and subject to such conditions as the Secretary of State deems fit. In particular, the licence may contain conditions, inter alia, permitting inspection and testing of the licensee's facilities and equipment; requiring the licensee to provide information indicated by the Secretary of State concerning the nature, conduct, location and results of the licensee's activities; requiring the licensee to obtain advance approval for any intended deviation from orbital parameters and to notify the Secretary of State of any unintended deviation; requiring the licensee to conduct operations in such a way as to prevent contamination of outer space, adverse changes to the Earth's environment or interference with the space activities of others; requiring the licensee to insure against liability incurred in respect of damages or loss suffered by third parties, in the United Kingdom or elsewhere, as a result of the activities authorized; and governing the disposal of the payload in outer space on the termination of operations.

60. A licence may be transferred with the written consent of the Secretary of State in accordance with section 6 of the Act. Section 6 further provides for the revocation, variation and/or suspension of the licence by the Secretary of State in cases of non-compliance with a condition of the licence or regulation under the Act or where such revocation, variation and/or suspension is required in the interests of public health,

national security or any international obligation of the United Kingdom. Section 6, paragraph 3, of the Act, however, makes it clear that the revocation, suspension or expiry of a licence does not affect the obligations of the licensee under the licence.

61. Additionally, section 10 of the Act stipulates that any person to whom the Act applies shall indemnify the Government of the United Kingdom against any claims brought against the Government in respect of damage or loss arising out of activities carried on to which the Act applies. Exceptions to this requirement are allowed for persons acting as employees or agents of another and for damage or loss resulting from anything done on the instruction of the Secretary of State.

62. There are two primary mechanisms to ensure compliance by non-governmental entities. The first mechanism allowing for immediate or rapid enforcement is established under sections 8 and 9 of the Act, which enable the Secretary of State to give directions to a person carrying on activities in contravention of the licensing requirements of section 3 or the conditions of an issued licence. Such directions may be enforced by injunction, interdict or by direct action taken in accordance with a warrant issued by a justice of the peace. The second mechanism for compliance is established by section 12 of the Act, which provides for various criminal offences relating to activities undertaken in contravention of the regulations, conditions and directions issued or in force under the authority of this Act. Of particular interest in this regard are the provisions providing for personal criminal liability of the directors and officers of bodies corporate, as well as for proceedings treating offences committed outside the United Kingdom as if they had been committed within the United Kingdom.

I. United States of America

63. Unlike most of the States discussed above, the United States of America does not have a single or primary legislative instrument that governs its national space activities in general. Instead, the United States implements its responsibilities to authorize and provide continuing supervision of the space-related activities of non-governmental persons and entities through the operation of a legal regime consisting of a number of complementary legislative and regulatory instruments.

64. The conduct of commercial launch and re-entry operations by non-governmental entities is regulated by the Commercial Space Launch Act of 1984, 49 United States Code (USC) 70101 et seq. (as amended, inter alia, by the Commercial Space Act of 1998) and the Federal Regulations, 14 Code of Federal Regulations (CFR) parts 400-499, promulgated in terms of this Act. Section 70101 (b) (3) of the codified Commercial Space Launch Act provides that the Secretary of Transportation is to oversee and coordinate the conduct of commercial launch and re-entry operations, issue and transfer commercial licences authorizing those operations and protect the public health and safety, safety of property and national security and foreign policy interests of the United States. In practice, those responsibilities are exercised on behalf of the Secretary of Transport by the Office of Commercial Space Transportation of the Federal Aviation Administration.

65. Section 70104 (a) of the codified Act requires a duly issued or transferred licence for (a) a person or entity (regardless of their nationality) to launch a launch vehicle or operate a launch or re-entry site or to re-enter a re-entry vehicle in the United States; (b) a citizen of or entity organized under the laws of the United States to launch a launch vehicle or operate a launch or re-entry site or to re-enter a re-entry vehicle outside the United States; and (c) for an entity organized under the laws of a foreign country in which a controlling interest is held by a United States citizen or legal entity to launch a launch vehicle or operate a launch or re-entry site or to re-enter a re-entry vehicle outside the United States unless a foreign country has jurisdiction over such activity by reason of territoriality or agreement with the United States Government.

66. In accordance with Federal Regulations, 14 CFR parts 400-499, various categories of licence are obtainable by issuance or transfer following application in accordance with the procedures and conditions prescribed by the Secretary of Transportation. These include launch licences; licences for launch and re-entry of reuseable launch vehicles; licences to re-enter a re-entry vehicle other than a reusable launch vehicle; licences to operate a launch site; and licences to operate a re-entry site. Licences in the first three categories are further divided into those granted for a specific activity or activities having the same parameters and "operator" licences, which are granted for a range of activities with various authorized parameters

involving launchers, re-entry vehicles or payloads within the same families or classes. In all cases, applications for licences are preceded by a mandatory consultation between the applicant(s) and the Office of Commercial Space Transportation to discuss potential issues relevant to the latter's licensing decisions. Thereafter, in order to be granted, each licence application is required to obtain a series of approvals based upon evaluations conducted by the Office of Commercial Space Transportation in coordination with other divisions of the United States Government.

67. For all of the types of licences described above, a policy review is conducted in coordination with the Departments of Defense and State, the National Aeronautics and Space Administration and other appropriate agencies to determine whether the launch, re-entry or operation of a launch or re-entry site by the applicant would jeopardize United States national security or foreign policy interests or international obligations. Similarly, for all types of licence, a safety review is conducted to determine whether the applicant is capable of conducting the proposed activity without jeopardizing public health and safety and safety of property. The requirements of those safety reviews are specific to the type of activity but in all cases consider such issues as identification, analysis and compliance with acceptable risk criteria; existence of safety organizations and officials; and accident emergency response and investigation plans and procedures. Furthermore, applications for all types of licence are subject to an environmental impact analysis to ensure compliance with, inter alia, the requirements of the National Environmental Policy Act, 42 USC 4321 et seq.; the Council on Environmental Quality Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act, 40 CFR parts 1500-1508; and the Federal Aviation Administration's Procedures for Considering Environmental Impacts, FAA Order 1050.1D.

68. In the case of licences for launches and/or re-entries, a payload review is also conducted to determine whether the launch or re-entry of the payload would jeopardize public health and safety, safety of property, United States national security or foreign policy interests or international obligations. The only exceptions to this payload review are those payloads which are owned or operated by the United States Government or are subject to licensing by the Federal Communications Commission or the Department of Commerce (National Oceanic and Atmospheric Administration), as discussed in paragraphs 71 and 72 below. This payload review is a critical component because in the case where the nature, operation and activities of a given space object have the potential to jeopardize public health and safety, safety of property, United States national security or foreign policy interests or international obligations, the Office of Commercial Space Transportation would presumably conclude that the space object's launch or re-entry would have a similar effect and consequently refuse to grant the necessary approvals. Therefore, de facto this payload review component extends the scope of the Office of Commercial Space Transportation's authorization and control beyond just the activities of launching and re-entry to include the nature, operation and activities of all space objects launched or re-entered under United States licence.

69. In addition to obtaining the approvals discussed above, all launch and re-entry licensees are obliged to comply with certain post-licensing requirements, including providing the Office of Commercial Space Transportation with information necessary to enable the United States Government's implementation of article IV of the Convention on Registration of Objects Launched into Outer Space (General Assembly resolution 3235 (XXIX), annex) and complying with the financial responsibility requirements specified in the licence. The basis for these financial responsibility requirements are set out in sections 70112 and 70113 of the codified Commercial Space Launch Act and Federal Regulations 14 CFR part 440. Essentially, for every launch or re-entry licence issued or transferred, the licensee or transferee is required to obtain liability insurance or demonstrate financial responsibility in amounts to compensate for the maximum probable loss for claims by third parties for death, bodily injury or property damage or loss resulting from activity carried out under the licence; and the United States Government for damage or loss of government property resulting from activity carried out under the licence. The amounts required to compensate for maximum probable loss are determined in the case of each licence by the Office of Commercial Space Transportation, up to a maximum of $500 million ($100 million for claims by the United States Government) or the maximum liability insurance available on world markets. Any claims exceeding the determined amounts are payable by the United States

Government on behalf of the licensee up to a statutory maximum, which is currently set at $1,500 million. Licensees for the operation of launch and re-entry sites are not subject to this financial responsibility requirement. Additionally, all launch and re-entry licensees are required to enter into reciprocal waiver of claims arrangements with their contractors, subcontractors and customers and contractors and subcontractors of their customers involved in the launch or re-entry services under which each party agrees to be responsible for any claims for damage or loss sustained by its own employees.

70. Various measures are provided within the codified Commercial Space Launch Act to ensure licensee compliance. Section 70106 requires a licensee to allow the Secretary of Transportation to place an officer or employee of the United States Government or another individual as an observer at a launch site or re-entry site the licensee uses, at a production facility or assembly site a contractor of the licensee uses to produce or assemble a launch or re-entry vehicle or at a site at which a payload is integrated with a launch or re-entry vehicle. The observer is responsible for monitoring the activity of the licensee or contractor to ensure compliance with the licence and applicable laws and regulations. Section 70107 provides for the modification, suspension and revocation of licences by the Secretary on his own initiative, by application of the licensee, in the case of non-compliance by the licensee, or where the suspension or revocation is necessary to protect the public health and safety, safety of property and national security and foreign policy interests of the United States. Similarly, under section 70108, the Secretary may prohibit, suspend or end immediately any licensed launch of a launch vehicle, operation of a launch site or re-entry site or re-entry of a re-entry vehicle if he or she decides that such launch, operation or re-entry is detrimental to public health and safety, the safety of property or a national security or foreign policy interest of the United States. Section 70115 further grants the Secretary lawful powers of investigation, search and seizure in order to carry out his or her duties, as well as the power to impose civil penalties for any violation of the laws, regulations or terms of licences falling within the scope of his or her responsibilities. Actions and decisions taken by the Secretary are subject to administrative hearings and ultimately to judicial review in accordance with section 70110.

71. In addition to the licensing requirements and activities of the Office of Commercial Space Transportation discussed above, it should be noted that two other agencies of the United States Government are responsible for authorizing through licensing procedures certain activities of non-governmental entities in outer space. The first of those agencies is the Federal Communications Commission, established in accordance with the Communications Act of 1934, 47 USC 151 et seq. (as amended). Part 25.102 of the Federal Regulations, promulgated by the Commission under that Act, states that no person shall use or operate apparatus for the transmission of energy or communications or signals by space or Earth stations except under, and in accordance with, an appropriate authorization granted by the Federal Communications Commission. The objectives of the authorization requirement are to enable both domestic and international coordination of satellite communications activities and to provide protection from impermissible levels of interference to the reception of signals by Earth stations in the fixed satellite service from terrestrial stations in a co-equally shared band. Applications are made directly to the Commission under conditions and with such accompanying information as are determined by it. Licences, or their modifications or renewals, are granted by the Commission if, upon examination of the application, any pleading or objections filed against the application, and upon consideration of such other matters (e.g. national policy) as it may officially notice, the Commission finds that the applicant is legally, technically and otherwise qualified, that the proposed facilities and operations comply with all applicable rules, regulations and policies and that grant of the application will serve the public interest, convenience and necessity.

72. Finally, the Secretary of Commerce, in accordance with the Land Remote Sensing Policy Act of 1992, 15 USC 5601 et seq. (as amended, inter alia, by the Commercial Space Act of 1998), and with the assistance of the National Oceanic and Atmospheric Administration, is responsible for the authorization and licensing of private remote sensing space systems. As indicated in section 5622 of the codified Act, the purpose of the licensing requirement is to ensure that persons subject to the jurisdiction or control of the United States comply, inter alia, with requirements to operate private remote sensing space systems in such a manner as to preserve the national security of the

United States and to observe its international obligations; to make available to the Government of any country (including the United States) unenhanced data collected by the system concerning the territory under jurisdiction of such Government as soon as such data are available and on reasonable terms and conditions; to make certain designated unenhanced data available to all users without preference, bias or any other special conditions; upon termination of operations, to make disposition of any satellites in space in a manner satisfactory to the President; to furnish the Secretary of Commerce with complete orbit and data collection characteristics of the system and to inform of any deviation therefrom; and to notify the Secretary of Commerce of any significant or substantial agreement the licensee intends to enter with a foreign nation, entity or consortium involving foreign nations or entities. In carrying out this responsibility, the Secretary of Commerce is vested with various administrative and regulatory authorities, including the abilities to grant, transfer, condition, modify or revoke such licences, as well as powers of investigation, search and seizure and the provision of civil penalties for non-compliance by licensees. Actions and decisions of the Secretary are subject to administrative hearings and judicial review.

Notes

[1] "Launch activities in Japan", presented by Chikara Iikura of the Science and Technology Agency of Japan (see A/AC.105/C.2/2000/CRP.12, pp. 31-33).